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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(pursuant to NAC 445A.236)

Permittee Name: Tronox LLC (formerly Kerr-McGee Chemical LLC)
P.O. Box 55
Henderson, NV 89009

Permit Numbers: NEV2001515 & NEV2001516

Location: 8000 W. Lake Mead Parkway
Henderson, Clark County, Nevada 89015
Latitude: 36° 02′ 32″ N, Longitude: 114° 59′ 59″ W
T22S; R62E; Sections 12-13

General: The Permittee operates an electrochemical manufacturing facility located in the Henderson, Nevada Industrial Area (i.e., Basic Management, Incorporated (BMI) Industrial Complex). Tronox LLC (Tronox) manufactures manganese dioxide (component of alkaline batteries), elemental boron, and boron trichloride (chemical used in the pharmaceutical industry). Historically, Tronox (as Kerr-McGee Chemical LLC) additionally manufactured a number of chlorate and perchlorate based compounds including ammonium perchlorate. Ammonium perchlorate has a number of uses including its use as an oxidizer in solid rocket propellant for aerospace and military applications. Perchlorate production ceased at this facility in July 1998 and the perchlorate production equipment was decommissioned and dismantled by March 2002. The former Kerr-McGee Chemical LLC was separated from its parent firm and renamed as Tronox LLC in late 2005. Neighboring facilities within BMI include Pioneer Americas LLC, Titanium Metals Corp. (TIMET), Chem Star, and Saguaro Power Co.

Tronox has five double-lined, zero-discharge holding ponds. The facility has requested separate zero-discharge permits for pond GW-11 (NEV2001515) and for ponds WC-West, WC-East, MN-1, and AP-5 (NEV2001516), respectively. Previously, these five ponds were permitted in NPDES Permit No. NV0000078. During the renewal process of NV0000078, Tronox (as Kerr-McGee Chemical LLC) had requested separate state-issued, zero-discharge permit conditions for their five remaining holding ponds.

Tronox operates the Perchlorate Treatment System under a Bureau of Corrective Actions Consent Agreement. The current Perchlorate Treatment System is comprised of a two stage Fluidized Bed Reactor[1] (FBR) biological treatment system. Prior to, and as part of, the FBR Treatment System, extracted groundwater and other water is treated for chromium, nitrate, chlorate, perchlorate, and other contaminants present in the influent water. The remediation process uses several biological reactors arranged in series to allow for the reduction of nitrate, chlorate, and perchlorate. Chromium is reduced and/or removed from the influent water through several methods including: - reduction and precipitation by electrolytic methods and through the introduction of ferrous sulfate. The majority of this treatment occurs on-site at the BMI Complex. The addition of ferrous sulfate also occurs at the Athens Road Lift Station. The remediated water from the FBR is treated to remove solids, disinfected with a UV system, then discharged to the Las Vegas Wash (LVW). The effluent discharge to the LVW is permitted under NPDES Permit No. NV0023060.

Pond GW-11 serves as a temporary storage pond to hold extracted groundwater and other water

[1]: Previous treatment was by ISEP/PDM Perchlorate Remediation, an ion exchange process.

when the Perchlorate Treatment System is off-line for maintenance or repairs or as needed to allow for proper operation of the Perchlorate Treatment System, well fields, and water collection systems. Other water[3] that can be stored in the GW-11 Pond includes: (1) collected surface water; (2) off-specification effluent from the Perchlorate Treatment System; (3) treated water from the on-site Chromium Treatment System; and (4) residual water from the prior chlorate/perchlorate production process. Under Permit No. NEV2001515, no direct discharge of water is allowed from pond GW-11, except to the Perchlorate Treatment System. As indicated above, all effluent limits for the treated water have been addressed in NPDES Permit No. NV0023060.

Ponds WC-West, WC-East, MN-1, and AP-5 are essentially process holding ponds with zero-discharge conditions. Other than additions of stabilized lake water to offset evaporation, Pond AP-5 does not have any inflow, e.g., 0.0 million gallons per day (MGD). The pond is to be decommissioned under terms of an Administrative Order on Consent (AOC) between Tronox and the Division. Soluble AP-5 pond contents will be transferred (pumped) to GW-11 Pond, periodically, to allow mixing with GW-11 Pond contents prior to treatment through the FBR Treatment System. Remaining AP-5 pond solids will be washed to remove perchlorate and transported off-site to a permitted landfill. The process water contents of Ponds WC-West and WC-East are recycled back into the production process. Pond MN-1 is intended to be an evaporation impoundment, and non-hazardous liquid wastes are not recycled back into the process stream. The general parameters for all five holding ponds are summarized below in Table 1.

Table 1: Holding Pond Parameters

Parameter	GW-11[1]	WC-West[2]	WC-East[2]	MN-1[2]	AP-5[2]
Capacity (gallons)	70,000,000	12,515,200	19,658,500	3,500,000	1,817,000
Surface area (ft^2)	479,160	67,600	88,580	53,000	35,000
Primary Liner	60 mil HDPE	60 mil HDPE	60 mil HDPE	60 mil HDPE	60 mil HDPE
Secondary Liner	40 mil HDPE	40 mil HDPE	40 mil HDPE	4-6" compacted clay	40 mil HDPE
Influent Flow, MGD (gpm)	0.06 (40)	0.008 (5.3)	0.085 (58.7)	0.0009 (0.6)	no inflow (in process of closure)
Contents	on-site groundwater and other water[3]	water softener, steam generation & cooling tower blowdown waters, wash solutions, filter flush, concentrated brine	water softener, steam generation & cooling tower blowdown waters, wash solution, filter flush, concentrated brine	filter waste & cathode wash solution	Contains residuals from perchlorate process

Notes:
HDPE: high-density polyethylene;
MGD: million gallons per day (30-day average flow)
gpm: gallons per minute (30-day average flow)
(1): pond permitted in NEV2001515
(2): ponds permitted in NEV2001516
(3): see above text for other water that can be stored

Receiving Water Characteristics: This permit does not allow for direct discharge of pond contents to any ground or surface waters of the State. The depth to groundwater beneath these double-lined ponds varies from approximately 30 to 35 feet, depending on location within the BMI complex. Groundwater flows from south to north towards the LVW. The LVW is located approximately 3.0 miles to the north from the closest boundary to the Tronox facility. The Nevada Division of Environmental Protection, Bureau of Corrective Actions regulates all remediation activities within the BMI complex resulting from contamination events. The ponds are double-lined and have leak detection sumps between the primary and secondary liners to detect any potential leakage in the primary (surface) HDPE liners. According to the applicant, there are no drinking water supply wells located within a one-mile radius of these holding ponds.

Flow: Estimated monthly average flows for each holding pond are specified in Table 1 above. These flows will be used to determine permit discharge fees and will be required to be monitored and reported. Because the daily flows may vary due to process demands, a limit will not be set, i.e., monitor and report basis. A monthly water balance (mass balance) for each holding pond is also required to account for all inflow (process inputs and incident precipitation), outflow (recycle to process), and evaporative losses.

Proposed Effluent Limitations and Special Conditions:

Table 2: Holding Pond Limitations

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Flow, MGD (Influent)	Monitor & Report (Each Pond)	Monthly	Flow Meters & Material Balances
Leak Detection System (between primary & secondary liners), gallons of liquid accumulated in sump	Monitor & Report (Each Pond)	Twice/Month	Discrete – Field Measurement
Pond Water Level, feet	Each pond: Monitor & Report	Twice/Month	Discrete – Field Measurement
Storage Volume, gallons	GW-11: 70,000,000 gallons, WC-West: 12,515,200 gallons, WC-East: 19,658,500 gallons, MN-1: 3,500,000 gallons, AP-5: 1,817,000 gallons	Twice/Month	Calculation

Pond AP-5 discharge to Pond GW-11, gallons	Monitor & Report	Twice/Month	Flow Meter
Water Balance (mass balance), gallons	Each pond: Calculate & Report	Monthly	Calculation

Schedule of Compliance: The Permittee shall submit the following items to the Division for review and approval:

- Within ninety (90) days of the permit issuance date **(October 5, 2006)**, the Permittee shall submit revised Operations and Maintenance (O&M) Manuals, as appropriate, for the holding ponds permitted in NEV2001515 and NEV2001516. Separate O&M Manuals shall be submitted for NEV2001515 and NEV2001516, respectively. Each O&M manual shall include sections on: leak detection systems, pond/liner inspections, calculating storage volumes and monthly water balances, sludge management, and both narrative and flow diagrams of all input/output streams for the holding pond operations.

Rationale for Permit Requirements: The Division's rationale for the proposed monitoring conditions is as follows:

- *Leak Detection Systems*: The Division requires that on a twice/month basis, the Permittee will remove, sample, and record the volume of any liquid collected from the holding pond sumps to check for leakage in the primary liner.

- *Pond Water Level*: The liquid level depth in each pond is measured twice/month to determine freeboard and storage volume.

- *Water Balance*: A monthly water balance serves as a check on any unaccounted losses (e.g., leakage) from the ponds.

Procedures for Public Comment: The Notice of the Division's intent to issue two state-issued, zero-discharge permits authorizing the facility to operate five double-lined holding ponds, subject to the conditions contained within the permit is being sent to the **Las Vegas Review-Journal** and **Henderson Home News** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of the public notice. The comment period can be extended at the discretion of the Administrator. The deadline at the Division for receipt of all comments pertaining to this public notice period is **July 3, 2006 at 5:00 P.M.**

A public hearing on the proposed determinations can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to reissue permits NEV2001515 and NEV2001516 to Tronox LLC in Henderson, Nevada for a period of five (5) years.

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Bureau of Water Pollution Control

Revised: May 25, 2006

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